DC-DC CONVERTER IMPLEMENTED IN A LAND GRID ARRAY PACKAGE

ABSTRACT OF THE DISCLOSURE

A semiconductor chip package that includes a DC-DC converter implemented with a land grid array (LGA) package for interconnection and surface mounting to a printed circuit board. The LGA package integrates all required active components of the DC-DC power converter, including a synchronous buck PWM controller, driver circuits, and MOSFET devices. In particular, the LGA package comprises a substrate having a top surface and a bottom surface, with a DC-DC converter provided on the substrate. The DC-DC converter including at least one power silicon die disposed on the top surface of the substrate. A plurality of electrically and thermally conductive pads are provided on the bottom surface of the substrate in electrical communication with the DC-DC converter through respective conductive vias. The plurality of pads include first pads having a first surface area and second pads having a second surface area, the second surface area being substantially larger than the first surface area. Heat generated by the DC-DC converter is conducted out of the LGA package through the plurality of pads.